DOCUMENT RESUME

ED 034 881 24 VT 009 940

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TITLE	The World of Working and Learning.
INSTITUTION	Rocky Mountain Educational Lab., Inc., Greeley, Colo.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C. Bureau of Research.
BUREAU NO	BR-6-2828
PUB DATE	Jun 69
CONTRACT	OEC-4-7-062828-30-63
NOTE	24p.
EDRS PRICE	EDRS Price MF-$0.25 HC-$1.30
DESCRIPTORS	*Career Planning, Cooperative Education, Educational Innovation, Educational Planning, Evaluation, *General Education, *Integrated Curriculum, Learning, *Models, Vocational Development, *Vocational Education

ABSTRACT

This position paper presents guidelines for an approach to career planning which integrates educational experiences with the world of work and job requirements, based on models developed in 1968 for the purpose of planning the "Image of the World of Work" program. It provides the rationale and the application of the models for general work-production and presents a guide for planning, work process, and evaluation. The three components of the occupational education program are: (1) "The Image of the World of Work," designed to help teachers emphasize work-relevant attitudes and occupational information throughout a student's total school experience, (2) The Occupational Clusters Curriculum, designed to create and test a scheme for the development of occupational education curriculums based on a career cluster concept at secondary school level, and (3) Cooperative Career Planning, a concept which stresses coordination of all relevant community resources so that all individuals might have the opportunity for job entry, continuous education, and upward occupational mobility. Related documents concerning these components are VT 009 939, VT 009 986, and VT 009 985, and VT 009 922. (CH)

BR-6-2828

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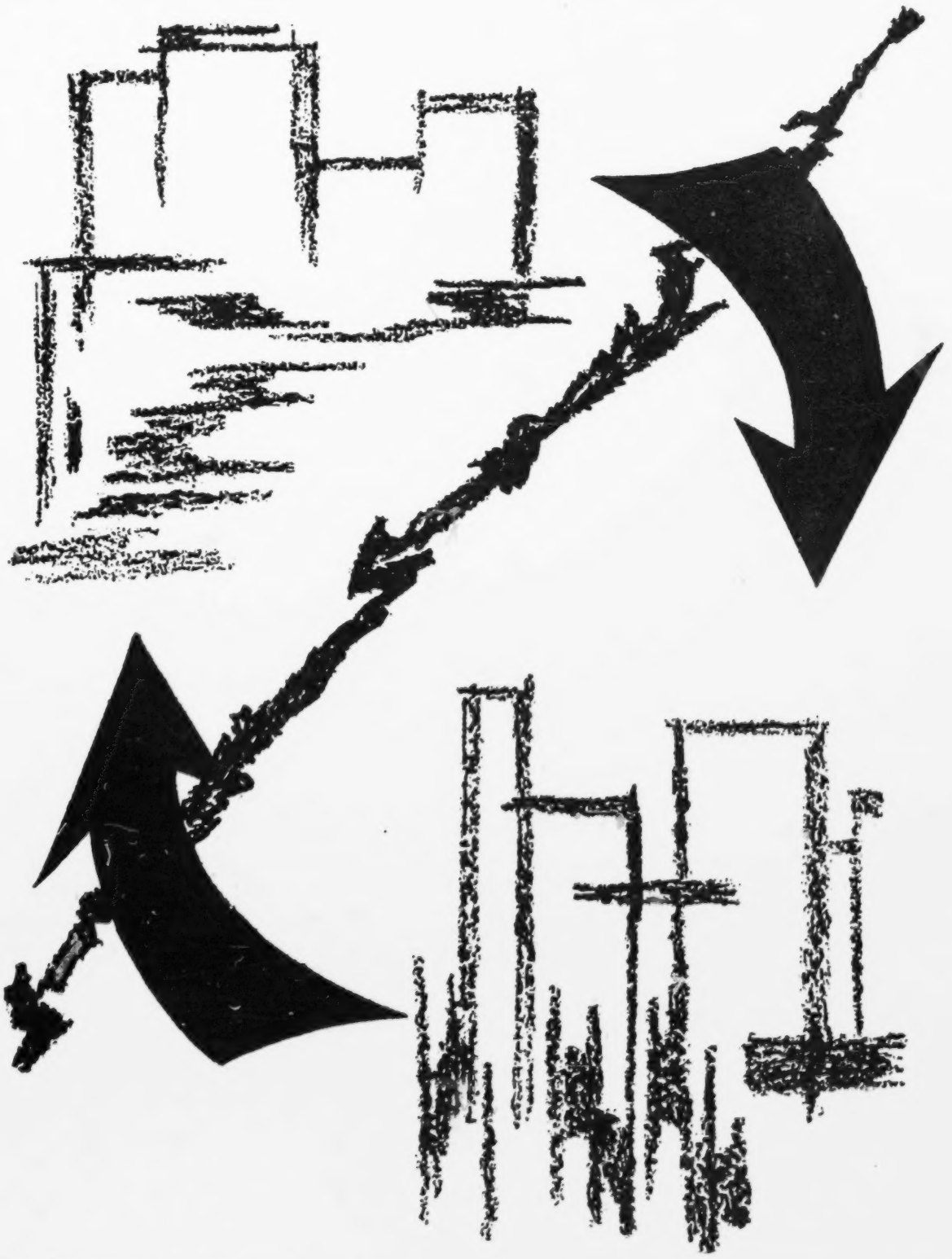

A POSITION STATEMENT

THE WORLD OF WORKING AND LEARNING

VT009940

ROCKY MOUNTAIN EDUCATIONAL LABORATORY

BR-6-2828
PA-24
OE/BR

ED034881

THE WORLD OF WORKING AND LEARNING

"Building a society in which all people can function with optimum satisfaction."

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Prepared pursuant to a contract with the United States Office of Education, Bureau of Research, H.E.W. Contract No. OEC-4-7-062828-30-63

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FOREWORD

When Occupational Education was identified as one of the major areas for developmental work by the Rocky Mountain Educational Laboratory, the first concern was a statement of conceptualization. The Position Statement, "Between Education and the World of Work" issued in June 1968 discussed the problem and briefly developed a rationale for the RMEL program. Certain concepts, such as the nature of work, a work taxonomy and career planning were developed for pilot programs to be field tested. During the summer and school year 1968-1969, the RMEL developed a program for 7th grade junior high school social studies and language arts teachers and students dealing with the "Image of the World of Work". Program emphasis was toward increasing students commitment to work relevant attitudes and knowledge of occupational information. The planning of activities required a developmental model.

To be consistent with the general concept of work-learn a production and education process model was developed. This paper, "The World of Working and Learning", represents an expansion of the basic models developed in 1968 for the purpose of planning the "Image of the World of Work" program. It provides the rationale and the application of the models for general work-production and presents a guide for the significant planning, work process and evaluation involved in any purposeful work. Subsequent papers could be more specific in terms of such educational implications as career counseling, management strategies, curriculum development, and teaching. The models are equally applicable for any production purpose, by providing appropriate inputs and work.

Although the primary purpose for the developmental work was occupational education, it is now evident that the implications are equally significant for business, industry, and services; all work.

THE WORLD OF WORKING AND LEARNING

Today more than ever in the history of our educational system, there is a need for reassessing educational goals and the processes and available resources to reach these goals. Perhaps the time has come to raise questions regarding not only content and process, but also the structure of the system used to *educate* our students to become productive citizens: (1) Does all preparation for one's life occupation occur in school? On the job? (2) How well are we using the total resources which have been, or could be, allocated to educating and/or training individuals to lead productive, satisfying lives? (3) What planning methods or procedures appear to permit a more realistic appraisal of both the individual's and society's needs in relation to education?

The following examples typify work-learn situations:

> Joe Smith began working in a supervisory position for Company X. His supervisors were pleased with his attitude and continued to assign him increasing responsibilities. Over a period of four years, Joe's work became increasingly effective and efficient and his output more valuable to the company.
>
> At the time when Joe's work was most valuable to Company X, Company Y began seeking a person to fill an executive leadership position in their organization. Knowing of Joe Smith's job performance and potential, Company Y contacted Joe. Joe was satisfied with Company X but realized that promotion to a higher position was not possible. In a further assessment of his situation in Company X, Joe realized that his work was becoming routine and was beginning to lack a challenge. Joe accepted Company Y's offer.
>
> In addition to becoming an executive with new challenges and opportunities which use his talent and energy, the new position provided earnings almost double his previous position.
>
> Henry Beebe was an *"average"* student in Wildwood High School. Having a curiosity and interest in science caused Henry to take advantage of any opportunity to learn and work with electronics. At times his interest in *"tinkering"* with radio and television sets interferred with his school work, and as he grew older his need to earn money became a personal problem.
>
> At this point, Henry could choose one of two alternatives: (1) work part-time at whatever he could find and continue school, (2) drop out of school and work full-time. Some perceptive teachers and administrators recognized Henry's interests and needs. They changed his schedule to provide classes in his areas of interest and gave Henry a part-time job at the

school repairing and managing audio-visual equipment. Under the superivision of the electronics teacher, Henry had an opportunity to learn practical electronics. His interest in his new job carried over into his other school work which improved. As a result of the job, Henry made contacts with business concerns in the community which resulted in several good job offers following his graduation.

These two examples, although different in setting, pose similar questions:

1. What is the outcome of a work-learn experience?

2. Is there a significant difference between the objectives in a business and a school setting?

3. What are the output objectives of a school?

4. What are the actual outputs of a business operation?

5. How can we predict what should happen as a result of work?

6. Was Company X in the education business as much as Wildwood High School?

7. Were the school and Company X in the production business?

Need for Relevant Relationships between Learning and the World of Work

A growing problem in our present education-to-work system is dimishing relevance of formal education to work skills and learning experiences. In spite of the commitments of individual teachers and administrators to provide students with skills and attitudes which will aid them in satisfactory employment, citizenship, and the world outside the school; school officials still seem to be primarily concerned with preparing students for the next succeeding level or grade. Employers must hire the products of the schools whether they are well or ill-prepared. On the job, the employee's time and energy are used primarily for production with too little attention being paid to utilizing the knowledge and skills gained by the employee in the work process. More recognition of the potential to work and learn would enhance the respective goals of both the business and the individual.

What Is the Nature of Work?

The preceding observations point out the need for a model which clarifies the relevant relationships between learning and work. Work, in this context, is defined as any activity (use of energy and time) in which an individual engages for the purpose of producing an end product. Obviously, such activities may be strictly individual or they may be a consciously the term *"work"* to the learning situation; and *"study"* as to the production situation, even though the *"work"* is not for pay or profit and *"study"* not for credit or grade.

Historically, the world of work has been associated with the production of a salable product. Consequently, activities associated with learning are not generally perceived as being work. On this basis, a marked distinction is made between academic and vocational education. While such a distinction does not appear to exist in reality, it does exist in practice. It exists sufficiently to cause the Advisory Council on Vocational Education to cite, as the first of five tenets, "Any dichotomy between academic and vocational education is outmoded." (1:2-3) If we accept this as a basic premise, then:

1. How does work relate to both a learning and product-oriented situation.
2. How do the inputs and outputs of the learning and production situation differ?
3. How can the inputs be mobilized and utilized to result in specific outputs?
4. What work process is needed to bring about the change from input to output?
5. How do we determine the success or quality of output?

The Learning Process in Production

To illustrate the work process in a production-oriented setting, assume that a factory desires to build a cabinet. First, a set of plans and specifications must be developed which describe precisely what the cabinet will be like when it is produced. To begin the activities and work prescribed one must have the necessary input resources such as work setting-shop, employer relationship-management, and competent worker skills-labor. Each of these must be described in terms of quantities and qualities relevant to the expected product. After the work has been completed, the product can then be evaluated in terms of the input objectives. Any variations from the desired cabinet can then result in either changes in specifications or changes in work processes or both. If *"learning"* can be defined simply as any change in behavior, then there is learning inherent in the project of building a cabinet. By generalizing the process, we can then say there is potential learning in the performance of any kind of purposeful work.

The Work Process in Learning

To illustrate the work process in an educational-oriented setting, assume that the task is to learn how to write a story. The story will be a product but the primary output of this assignment of work is learning how to write the story. The input objectives, or lesson plans, must describe the product in learning relevant work activities. The input resources required include the learning setting-school; instructional management-teacher; and human capacity-pupil. After the pupil attempts to write the story, it can be evaluated in terms of the input objectives, i.e., lesson plans. The learning can be measured by how well the actual output (story) relates to the input objectives. Any discrepancies between the objectives and the actual outcome would provide the basis for the next cycle of learning activity. The ultimate result of this cycling process, i.e., writing, evaluation, re-writing, etc., would be a student who has learned how to write a story. The basis for the judging of the quality of the product (a story) would be how closely it meets the performance criterion of the input objectives.

It is obvious in the work-learn situation that a product does result from the activity. When compared to the product-oriented activity of industry, it is evident that the processes of both are similar. The only difference is that the primary emphasis in the educational setting is on learning. In both, there is product and learning.

Job-Education Relevant Terminology

Understanding of the need for work and the results of work are clear; however, the specification of work task or worker competency to facilitate appropriate placement promotion and evaluation are vague and uncertain. There is general need for job-education relevant terminology. This need has been recognized and the National Center for Educational Statistics now has in final draft the development of a publication, "Standard Terminology for Curriculum and Instruction in Local and State School Systems" (3). One facet of this publication attempts to provide a relevant job-education terminology. The terminology, however, is only a part of the problem. There is need for a better understanding of the planning process, a system, which gives direction to the work-learn and work-production activity.

The Work-Learn Process

To plan work so that it results in specified outputs, it is important to understand just what needs to happen and then determine whether it really happens after work is performed.

In this discussion, work is perceived as any expenditure of energy to achieve an intended objective. This includes mental, physical, and emotional activities. In order to clarify this concept of work, two models or schema have been developed. Figure 1 describes the application of work for production purposes. Figure 2 describes work for learning purposes.

In the context of Figure 1, dealing with a job with a product objective, work is performed by a person in a series of discrete acts (use of energy). In an attempt to explain the nature of work, Fine notes (2:p.p.768)

> According to Brown and Jaques, the prescribed content of a job consists of those elements about which the worker has no authorized choice. The prescribed elements are of two kinds: (1) the results expected, and (2) the limits set on the means by which the work can be done. The results of a job are nearly always prescribed in the sense that the object of a person's work is set by the manager and/or supervisor and not by himself. As far as methods of work are concerned, some are prescribed and some are discretionary. The prescribed methods are determined by the equipment available, the physical limits of the job situation, the routines, the general policies governing the methods to be used in pursuing results.
>
> The discretionary content of work consists of all those elements in which choice of how to do a job is left to the person doing it. Here a worker is authorized and expected to use discretion and judgment as he proceeds with his work, overcoming obstacles by picking what he considers the best of the alternative courses he has chosen.

The repeated performance of a job results in learning on the part of the worker. Thus, as the job is repeated there is a consequent shifting of the nature of the work from prescriptive to more discretionary acts. This is illustrated in Figure 2. This suggests the intensity of the concomitant learning which results with each repeated performance of a certsin task or job. The diagonal line suggests that each time a task is repeated the learning gain causes a consequent shifting of the discretionary/prescriptive work process.

Figure 1

Worker-Product Model

The Discretionary-Prescriptive Domain

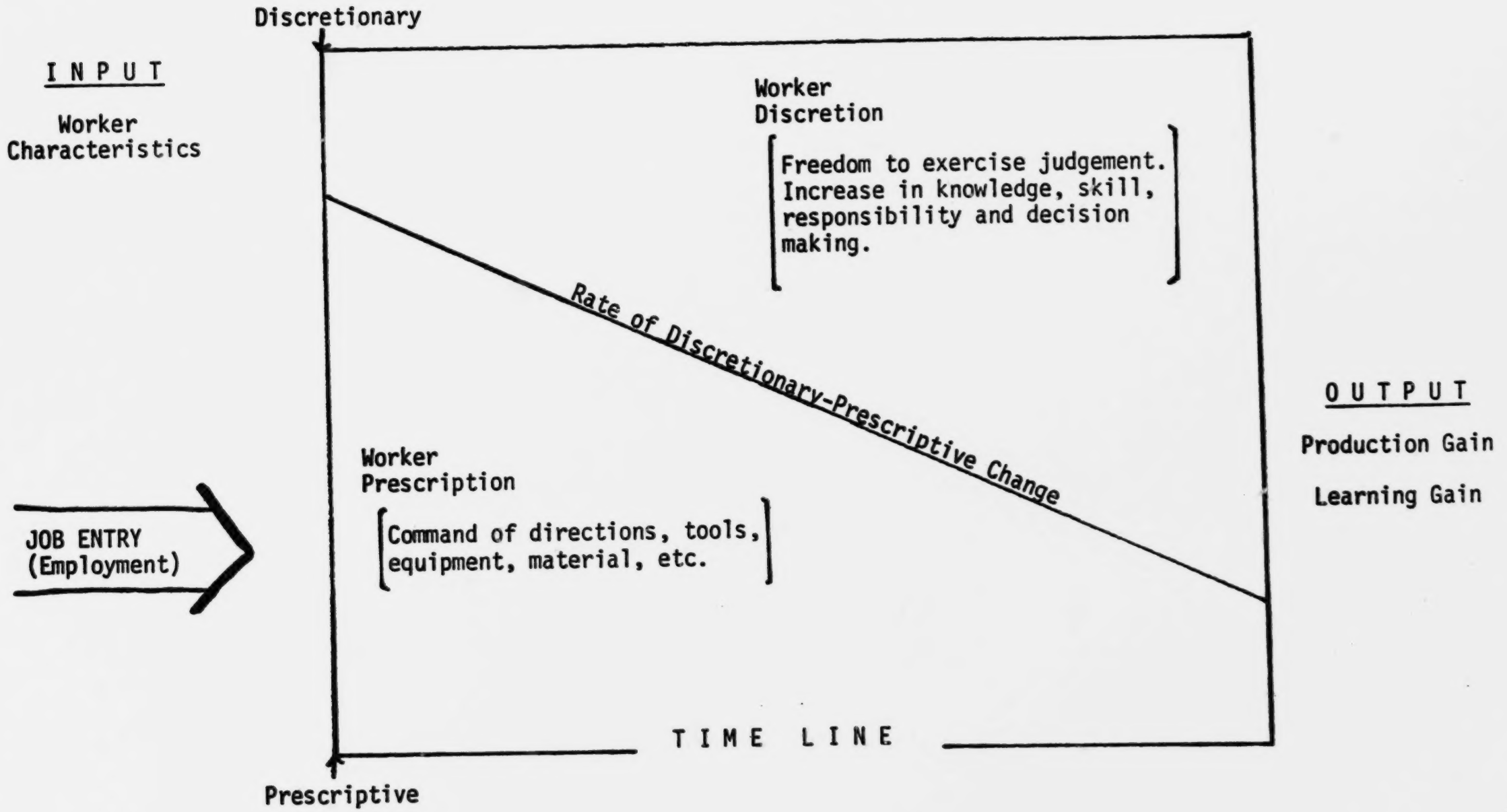


Figure 2

Learning Gain Model

The Discretionary-Prescriptive Domain

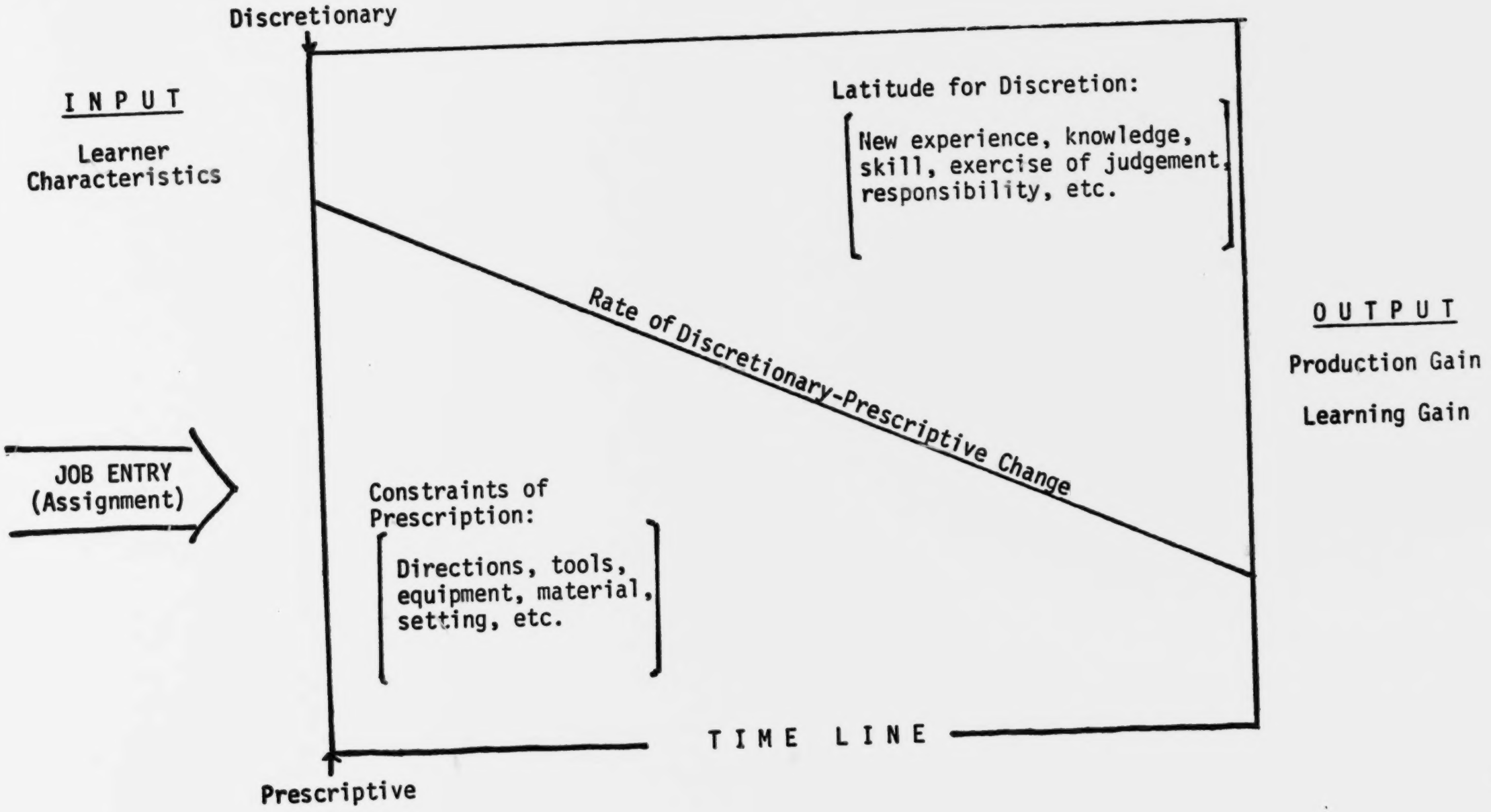
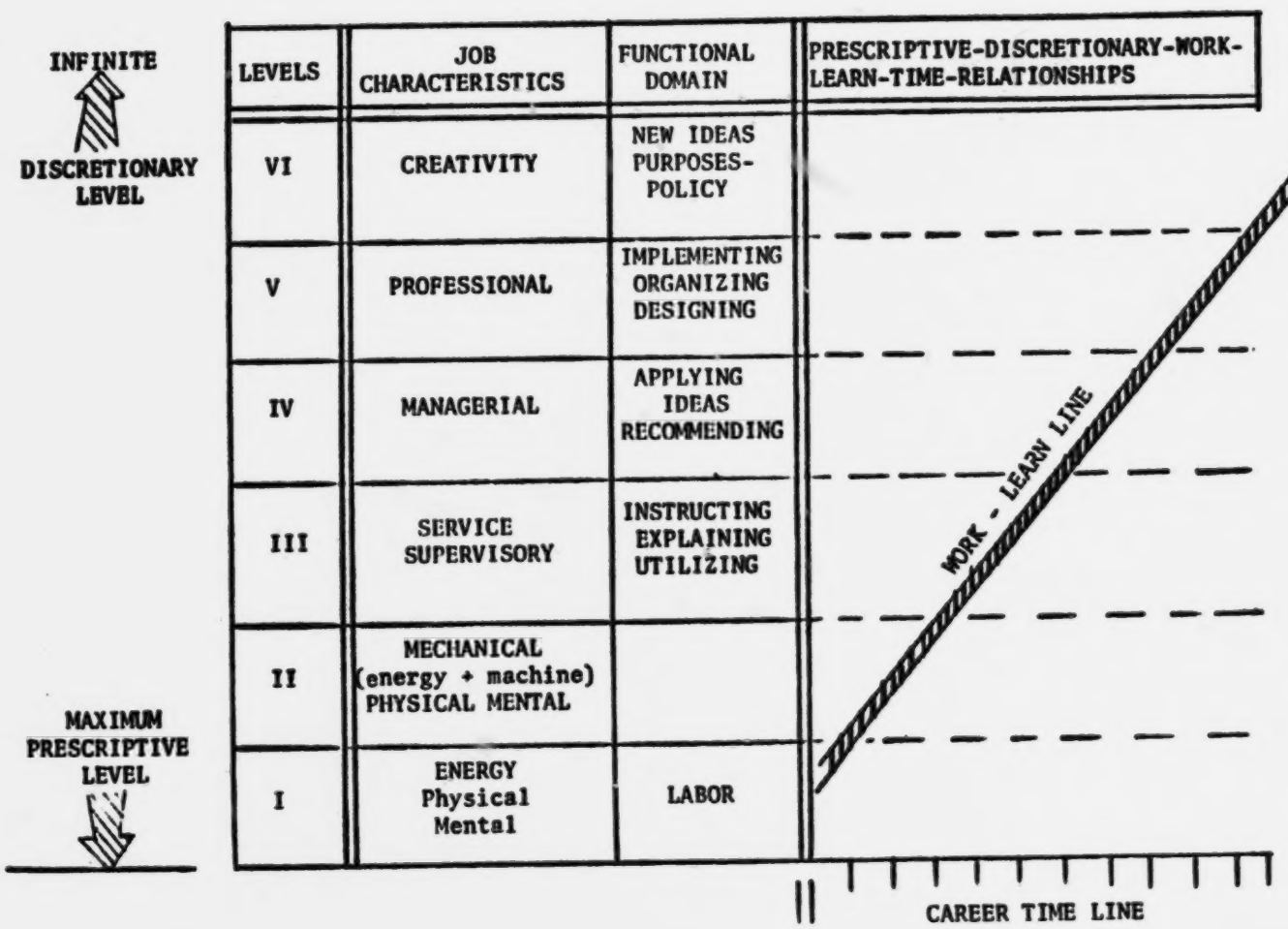


Figure 3

A TAXONOMY OF WORK AND A REPRESENTATION OF UPWARD MOBILITY DURING A CAREER



Explanation of Job Levels, Characteristics, and Functional Domain

LEVEL I The primary requirement for this level is worker energy. The individual tasks are highly prescribed; therefore, little worker discretion is exercised. Example: handling materials such as stock room work.

LEVEL II Worker energy noted in Level I is supplemented at this level by mechanical tools. This level requires a minimum level of knowledge and judgment related to the operation of the machines. Example: operating a calculator, typewriter, saw, etc.

LEVEL III At this level the worker must have a greater knowledge of manipulations related to his particular job in order to service the machines or supervise the job being done. Example: shop supervisor or foreman, teacher, salesman, auto mechanic.

LEVEL IV A worker functioning at this level would necessarily need to possess managerial knowledge and skills because this level requires organizing production, then managing the various task components through the development of the end product. Example: department store proprietor, plant manager, principal, etc.

LEVEL V This level requires very extensive study and learning investment which enables the worker to implement the ideas or creations of persons functioning at Level VI. Example: corporation president, doctor, lawyer, etc.

LEVEL VI The purpose of work at this level is to use wide discretion in creating new ideas and design concepts. Example: judge, artist, composer, product designer, researcher, etc.

A Work Taxonomy

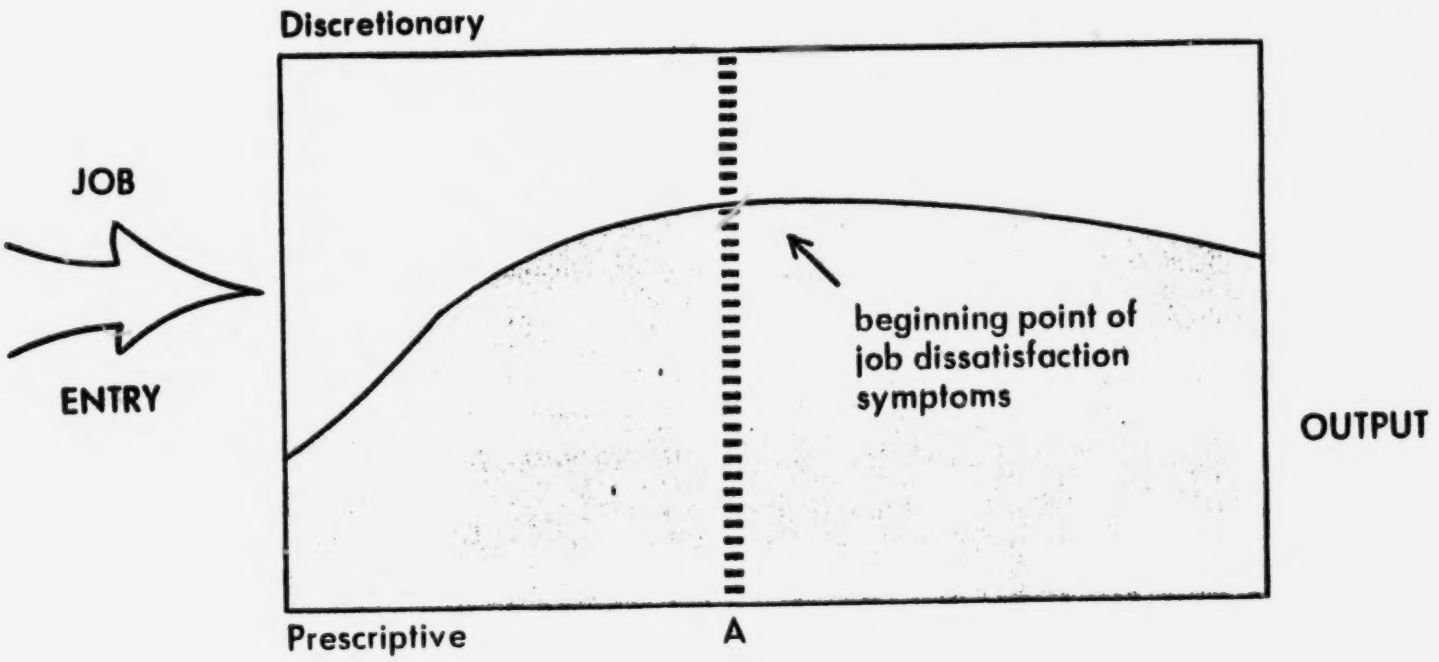
It is a recognized that there are graduated levels of difficulty in work. These levels have been categorized in Figure 3 in a taxonomy of work. This taxonomy provides a basis for the description of the levels of difficulty of work by job characteristics and functions. The scale is based on the ratio or proportion of the task performed at the prescriptive or the discretionary level. Level I is basically prescriptive and Level VI is basically discretionary. Another parallel measure included in the scale relates to the learning investment required to perform the task competently. At Level I, there is very little learning investment required or needed. At Levels V and VI broad and extensive learning investments are needed.

Job Repetition Results in Low Job Satisfaction

If the job or task description of the employer simply provides for a repetition of the same tasks with no new learning experiences or work components added, then the worker would simply more laterally as suggested by the Figure 4 example.

Figure 4

LEARNING – LOW JOB SATISFACTION



This kind of task repetition results in low job satisfaction (4:13). A means to overcome low job satisfaction which results from repetitious work is to change to jobs which provide new challenges and work experiences. If in the process of changing jobs the worker cannot use the learning and experience gained from his previous job, low job satisfaction may also occur and could lead to habitual job changing as well as loss of escalated competence. The suggested alternative is to change to jobs which capitalize on previous learning and build toward higher level job requirements as described on the taxonomy. In other words, the worker should paln to move from a lower level of work to the next higher level or from a labor function to that of an operator, to that of supervisor, and ultimately, if ambition and ability permit, to the level of creativity which has no upper limits. This is suggested by the work-learn line in the right section of the taxonomy (Figure 3).

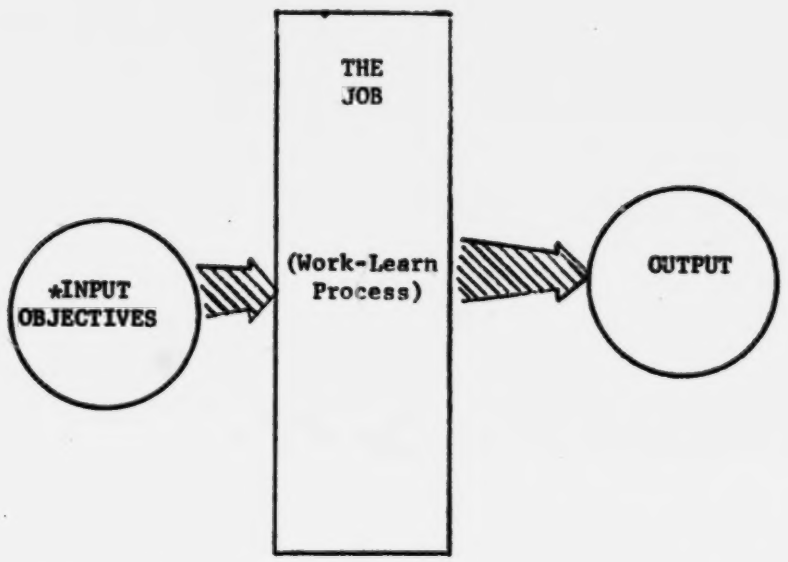
Creativity and Work

Creativity in work is a relative matter with each individual and it can function at all levels of work. Creativity can exist when the requirements of a task are highly discretionary for a worker. For many creativity seems to provide a challenge or diversion from routine that wards off feelings of boredom and low job satisfaction. Any time a job has new elements or discretionary acts, it is less likely that the employee will become disinterested. This is a clue to job design and employee assignment for maintaining high job satisfaction. Most employers can profit by recognizing this factor primarily by holding employees and maintaining high employee morale. Conversely, if the employer requires a high creative output and the employee is not creative, knowledgeable, or experienced sufficiently to provide the level of creativity demanded, one can expect frustration. The employee must be able to complete the job or feel that progress is being made or the job and the employer become a threat. The consequence is very low employer satisfaction and employee morale.

Planning-Productivity Process

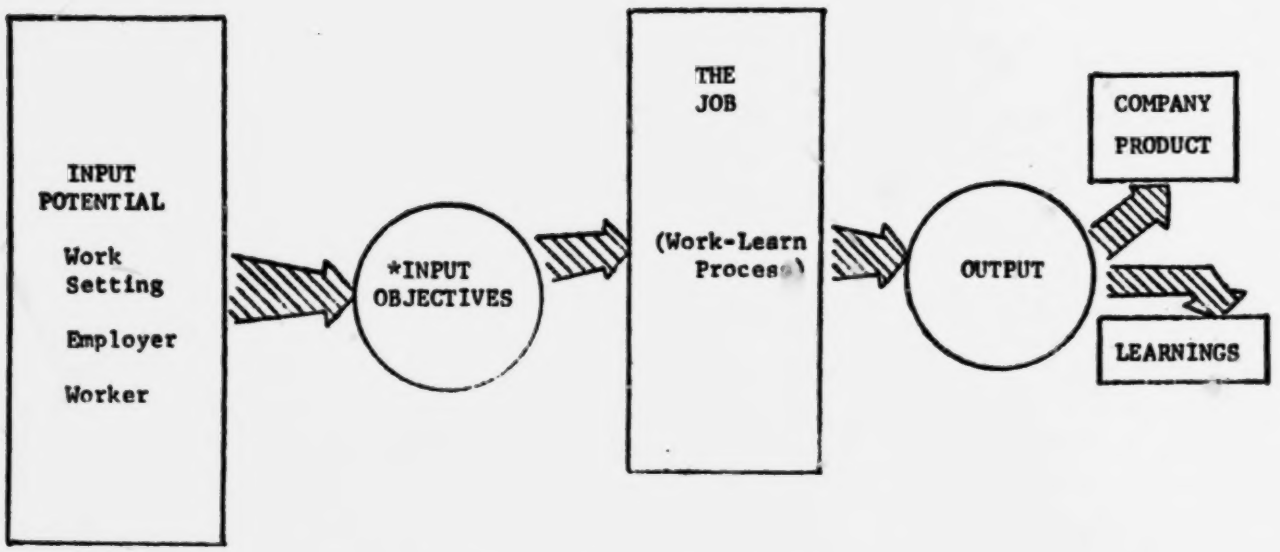
The definition of work suggests that there is a consequent product or output. The basis for the output is a set of input objectives. The model presented in Figure 5 suggests the simple production process beginning with input objectives, then the work-learn process and the output. The model presented in Figure 6 is an expansion which indicates the input potential and two outputs-product and learning.

Figure 5



*INPUT OBJECTIVES = (1) Output Specifications (Product and Learning)
(2) Logistics Plan
(3) Evaluation Criteria

Figure 6



As indicated in the footnote (Figure 5), the input objectives consist of three parts: (1) A set of output specifications which spell out in detail the actual product and the learning inherent in the work process. (2) The plan or logistics which details the step-by-step use of the input potential; that is, the work setting, components needed, management plan and, most importantly, the worker skills including attitudinal requirements, and (3) the product and performance criterion.

The product and performance criterion must be stated so that the actual output of company product and learning can be compared on qualitative and quantitative scales. The use of such comparison for evaluation and feedback purposes will be discussed in more detail later.

Capitalizing on Learning

In many manufacturing or business situations, product is the only concern and the consequent learning is not recognized or rewarded either through a system of promotions or pay. Based on knowledge about sustaining job satisfaction and increasing worker efficiency suggests that if the employee is not transferred from one job to another within the company so that his previous learning can be more efficiently utilized, there is little justification for increasing his pay. An employer's failure to capitalize on a job's learning output potential can be categorized as poor management which could be the difference between operating at a profit or at a loss. As indicated in a previous illustration, Company X had a four-year investment in Joe Smith. The inability of Company X to provide the kind of job situation which would continue to challenge Joe really resulted in a corporate loss of the learning investment in Joe. In essence they provided their competitor, Company Y, an opportunity to capitalize on Joe's learning experience. When Joe left Company X, it was necessary for Company X to invest again in the training of a new employee.

Planning for Upward Mobility

One of the major problems in the world of work results from an unrecognized and/or unplanned system of making employees eligible for upward mobility. Employers and employees must recognize the value of a well planned and systematic upward mobility policy. Employers benefit from such a promotion policy because they feed back into the company the worker's gain in learning. When employees are forced to move to other employers in order to be promoted, one employer is simply subsidizing the other employer.

Employees and employers benefit when employers use on-the-job training, provide work that is personally satisfying and productive, or provide a promotion policy to capitalize on the learning output.

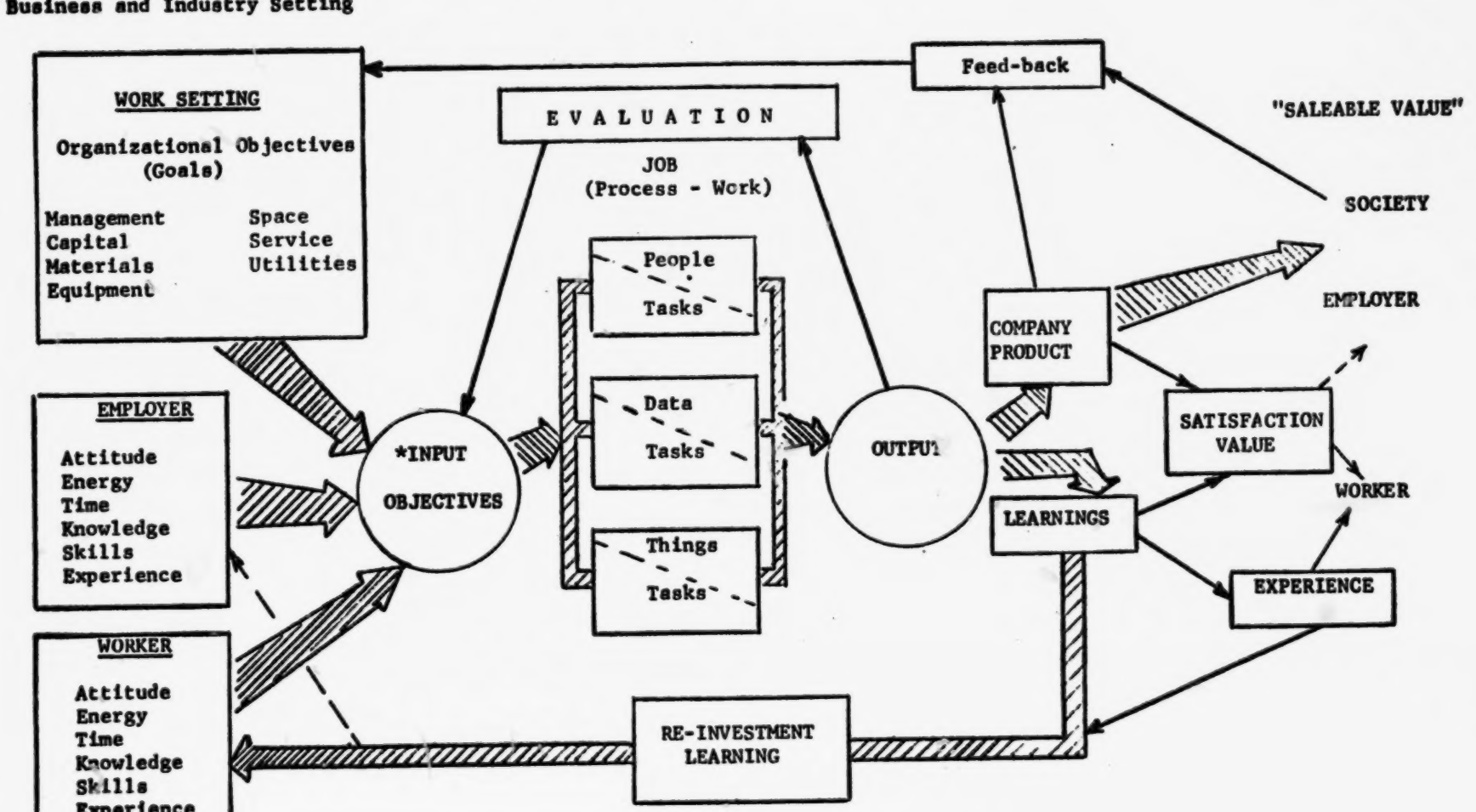
Figure 7 indicates the total implication of the production process including the evaluation and feedback cycles. The learning feedback is a reinvestment of the knowledge and skills gained by the individual worker following each task cycle. This feedback is intended to be utilized as a part of the worker's potential input on the succeeding job cycles.

The situation illustrated in Figure 7, which deals primarily with production, indicates how the input objectives should include specifications for the product which will go to society and how the learning is fed back as input potential.

The model presented in Figure 10 is not significantly different from that in Figure 7. In Figure 8 the primary outcome is desired learning, and the secondary outcome is a product. In both, work is to be done in terms of the specific input objectives

Figure 7

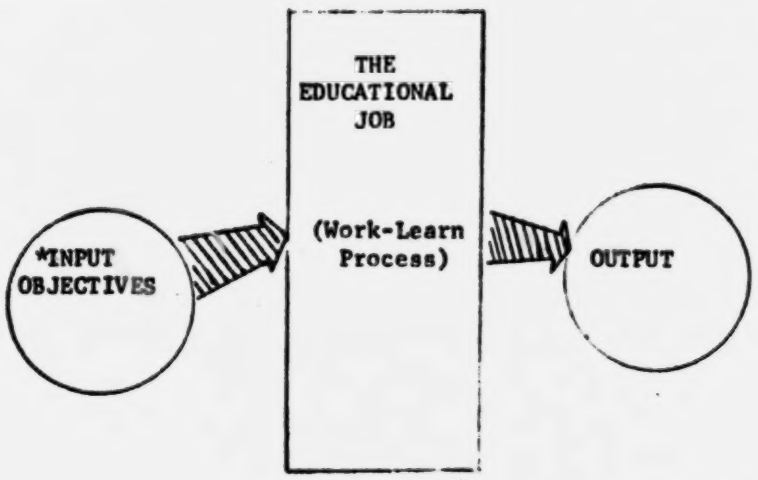
PRODUCTION



*INPUT OBJECTIVES = (1) Output Specifications (Product and Learning)
(2) Logistics Plan
(3) Evaluative Criteria

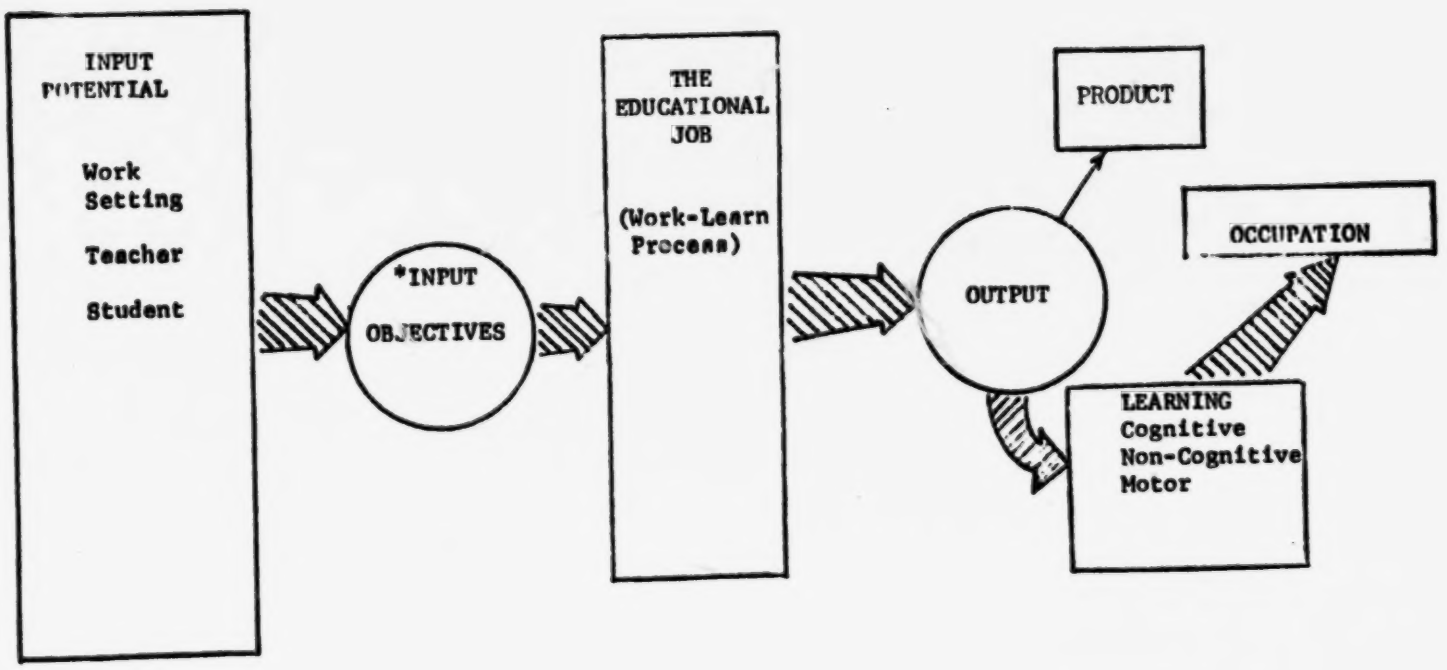
The models presented in Figures 8 and 9 indicate the educational parallel models to the work models presented in Figures 5 and 6. The only major difference is that the emphasis is on education as opposed to product.

Figure 8



*INPUT OBJECTIVES (Lesson Plans) = (1) Output Specifications (Learning and Product)
(2) Logistics (or process) Plan
(3) Evaluation Criteria

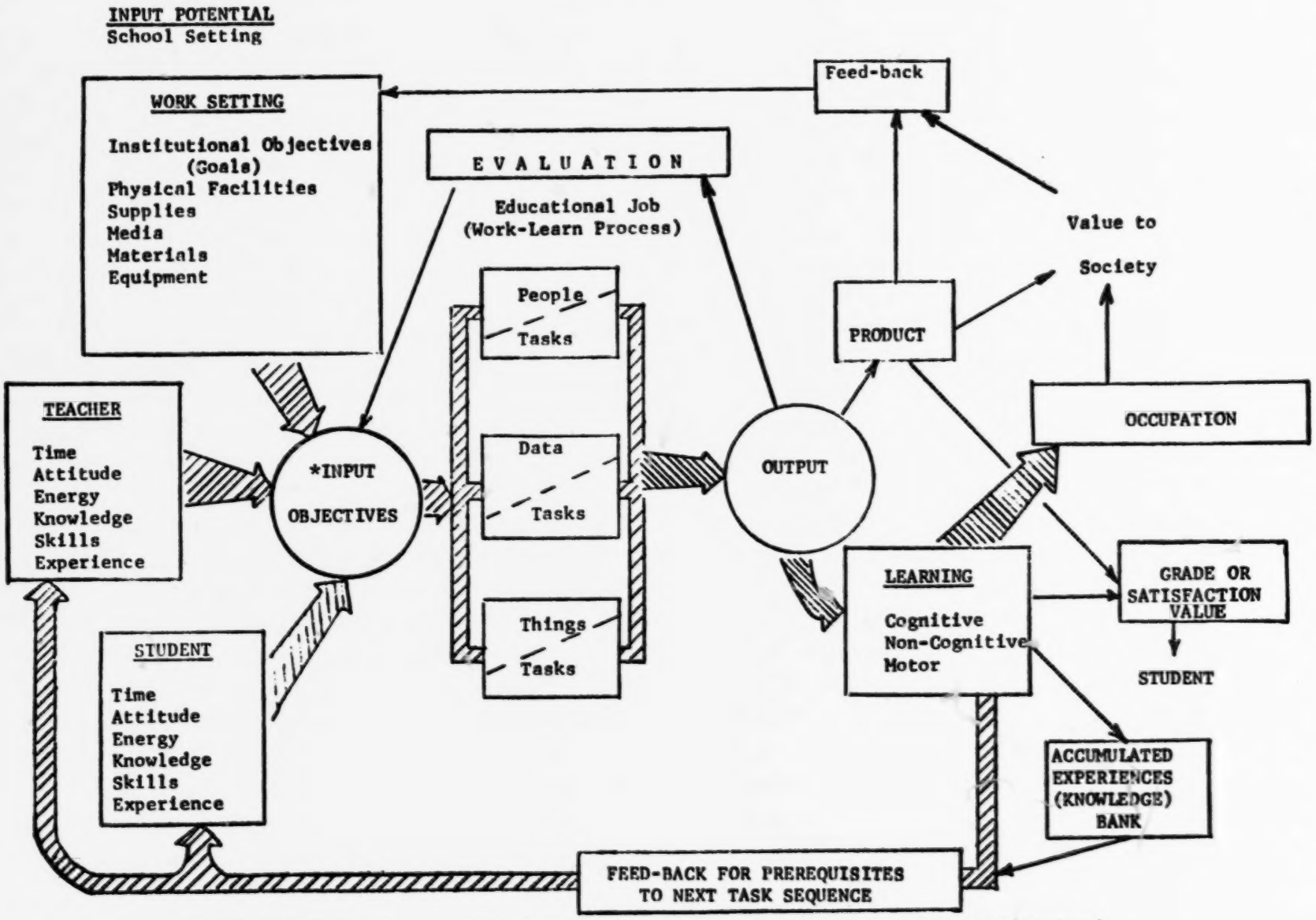
Figure 9



The input objectives of Figure 10 are referred to in most school settings as lesson plans. Like the input objectives in the product model, they consist of three parts. (1) The output specifications composed of learning and product. (2) The logistics or process plan, whereby the teacher outlines the process and activities which bring about the intended learning, and (3) Evaluation criterion. To be of value, the input objectives must be stated and qualified in terms of highly relevant educational tasks. Figure 10 provides a guideline for realistic curriculum planning by requiring the development of specific input objectives and the selection of relevant tasks or learning activities to produce the desired learning outputs.

Figure 10

EDUCATION



*INPUT OBJECTIVES (Lesson Plans) = (1) Output Specifications (Learning and Product)
(2) Logistics (or process) Plan
(3) Evaluation Criteria

In practice, many educational taska are so vaguely defined that they do not result in any worthwhile or identifiable product. The output is in terms of some obscure learning much of which is stored for deferred use as indicated in the model. This deferred learning goes into a knowledge bank. The value placed on the deferred learning is similar to a promissory note with a low rate of interest and high risk in terms of ever paying off before it is forgotten. It is important to note that the feedback learning, as contrasted to the deferred learning, refers to that learning which is usable in succeeding task sequences.

The product in the production model is something of material nature and has value in proportion to its relevance, i.e., its usefulness or salability to society. The product in the educational model is an educated person who has occupational value to society.

If the educational tasks or learning, have occupational relevance, i.e., provide an educated individual needed by society, then the product of the educational system has value in the same respect that a material product has value. The Henry Beebe example illustrates this point. As a result of the work-learn experience provided Henry in the school setting, he was transformed into an occupationally needed person. He has salable occupational competencies. He was a product of the school in the same sense that the services of Joe Smith were a salable product of Company X. Joe Smith was the result of a work-learn situation where the salable skills were a secondary product. With Henry Beebe, the secondary product was his service to the school and the primary salable product was an occupationally useful person.

Identifying Work-Learn Processes

To realize the implementation of these models, one in a production setting and one in the educational setting, requires work-learn relevant terminology. This includes a system for describing job requirements or work output in educationally relevant terms. Most available job descriptions and product criterion are either irrelevant or meaningless. The actual skills, knowledge and prerequisite attitudes needed by a worker to do a job are not stated in terms of performance criterion. No practical or satisfactory system has been developed which relates competencies on jobs to actual educational criterion so that the planning of educational programs can be facilitated. It is proposed that a taxonomy identified with worker competencies and job descriptions on a prescriptive to discretionary scale would provide a basis for describing work for input objectives. Such a scale should classify and identify levels and types of work for input objectives in terms of job performance and learning requirements.

A Taxonomy of Work with People, Data and Things

Figure 11, Taxonomy of Work, is the conceptualization of the work taxonomy scale as it pertains to job characteristics and functional tasks. The functional tasks have been further described as they pertain to work performed with people, data and things. By relating work to people, data and things it is possible to describe more specifically the type of tasks and jobs associated with production outputs. This taxonomy is not proposed as the perfect model but one which is quite useful as will be exemplified.

Jobs seldom concern only one of the work functions; that is, people, data or things. Neither do jobs typically require that people, data or things are treated at the same level on a taxonomy. Each job probably requires a unique combination of procedures or tasks, generally requiring different levels of prescriptive and discretionary performance with either

people, data or things. For example, an artist might function at the creative level of IV or V with things and could perform adequately at a lower level, I or II, with people and data.

Figure 11

TAXONOMY OF WORK

LEVELS	JOB CHARACTERISTICS	FUNCTIONAL DOMAIN	FUNCTION		
			THINGS*	DATA*	PEOPLE*
VI	CREATIVITY	NEW IDEAS PURPOSES-POLICY	Designing	Evaluation	Idealization
V	PROFESSIONAL	IMPLEMENTING ORGANIZING-DESIGNING	Testing	Synthesizing	Mentoring
IV	MANAGERIAL	APPLYING IDEAS RECOMMENDING	Precision	Coordinating Analyzing	Negotiating Instructing
III	SERVICE SUPERVISORY	INSTRUCTING EXPLAINING UTILIZING	Installation Service Supervising Operator	Compile Compute	Supervising Diverting Persuading
II	MECHANICAL (energy + machine) PHYSICAL MENTAL	OPERATORS OF _____	Manipulating Driving Tending	Copy Transcribe	Explaining Directing Signaling
I	ENERGY Physical Mental	LABOR	Feeding Handling	Collect Counting Observing	Serving

* ALL WORK FUNCTIONS IN RELATIONSHIP TO THINGS, DATA, AND/OR PEOPLE

Dictionary of Occupational Titles, Appendix, Volume 2, 1965

(5:19)

A minister might require competency at the IV or V level with respect to people and at the I or II level with things and data. A certified public accountant would require high competence with data and minimum level requirements with people and things. The same certified public accountant might conceivably need to work at a reasonably high level with things if his office provided computer equipment or operation of technical equipment to do the job.

Job criterion must be perceived in terms of the prescriptive and discretionary dimensions with latitude for continued learning. If the learning component is not present, then low job

satisfaction can be expected. Similarly, jobs at every level have some latitude for learning as well as for routine. The typical employee enjoys some task repetition as long as the remainder of the job offers an opportunity to learn or create.

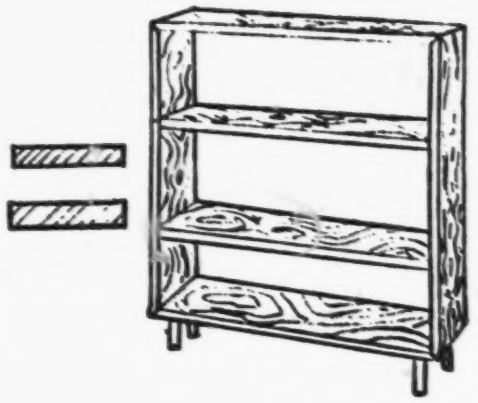
The taxonomy provides a basis for denoting the upper and lower limits of required job entry skill and potential learning range. The job entry is the level at which the worker must function to do the job satisfactorily. The ptential learning range indicates how high on the taxonomy the worker could progress before learning potential depreciates to the point where routine would consume the major time and energy of the worker. Several of the above concepts can be illustrated by an analysis of the tasks required in building a cabinet.

The cabinet maker starts with a set of cabinet specifications which requires level IV skills in terms of things, i.e., working with tools to cut and finish the materials and at level II to assemble and fit the pieces together. He would not depend on more than level II skills with data and level I or level II skills with people. For worker growth, the employer could allow the worker to spend some time on things at the design level VI. In the data category, the job could require some competencies as high as level IV associated with testing of material. The job could entail negotiations or sales which might require some skills in working with people as high as level IV. Figure 12 exemplifies the task taxonomy classification for the production of a cabinet.

Figure 12

TASKS TAXONOMY FOR A CABINET

	Design and Specifications	Selection of Materials	General Lay-out of Materials	Sizing and Cutting Various Parts	Fitting and Assembling	Rubbing for Final Finishing	Finishing	Final Inspection (Evaluation)	Packaging for Shipment	Pricing and Inventory Procedures	Sales
1. PEOPLE	III	II	I	I	I	I	I	I	I	I	IV
2. DATA	IV	I	III	II	II	I	I	IV	II	IV	III
3. THINGS	I	II	II	IV	IV	II	III	I	I	I	I



This task taxonomy is illustrative of the requirements which might be necessary in the planning, constructing, and selling a cabinet. It should be noted the levels of classification for each is more clearly described and explained in A Taxonomy of Work and A Representation of Upward Mobility During A Career (Figure 3)

This approach to task classification permits the determination of the number of workers and the skills required in the total planning, constructing, and selling processes to be included as a part of the input objectives. If this operation was to be accomplished by only one person, he would have to be very versatile because of the wide range of task levels involved. Application of the same classification system to a mass-production operation would indicate that fewer workers are needed at a given level and possibly only on a part-time basis. This same chart provides a clue for determining if the needed competencies are in the resource potential of the company. In addition to general level task competence reported, it is suggested that each item be reported in terms of the minimum and maximum level at which each task could utilize the competencies of workers. This would help to determine the potential for job satisfaction and the need to assign workers to higher level tasks.

Evaluation

In the models presented in Figures 7 and 10 on pages and evaluation and feedback represent integral considerations for improvement of product, relevancy of institutional goals, and performance of individuals who are involved in the planning, production and evaluation.

The basic purpose of evaluation is to compare the characteristics and qualities of the output product to the pre-established standards and specifications stated in the input objectives. Here the crucial question is: Do the output products meet the pre-established standards and specifications?

Feedback

Contrasted with evaluation, feedback is characterized by two functions or channels. First, there is potential feedback from the consumer to the institution or organization which is usually measured by s es. This is based on relevancy of the product to consumer needs and demands. Obviously society will be less receptive to a product which it deems sub-standard or unacceptable than to a product which possesses the utility (skills, knowledge and general usability) or aesthetic qualities judged relevant b societal needs. If the society-to-institution (or organization) feedback indicates the product is not relevant to the needs and demands of society, the institution must then assess its goals and resources to determine what changes need to be made in the input objectives to have a more desirable product. This includes plans to achieve these changes.

A second potential feedback is the knowledge and skills gained by the worker and channeled back to the management (or teacher) and the worker (or student). The measure of this feedback will be reflected in growth in worker competency and job satisfaction. It becomes imperative that the knowledge and skills gained in the production of one product unit be fed back and refocused in the planning of subsequent task sequences related to future product units.

The latter feedback function has many implications for effective and efficient utilization of human resources by the institution. The skills, knowledge and attitudes which are developed in the *"work"* or production process are lost to both the individual and the institution if they are not promptly fed back and reinvested in subsequent task sequences.

Evaluation Design

As indicated earlier, the full development of the input objectives would include an evaluation design. Both quantitative and qualitative criterion measures would be necessary to evaluate the achievement of input objectives. An appropriate specification of the desired output would be the basis for evaluation. In the use of models presented in Figures 7 and 10, the output is treated as a consumer product material. By setting up a criterion which rates or compares the product by its intended use, results of use, and actual use by society provides an evaluation design. The criterion descriptions would seem to be equally appropriate for both product and learning output.

Piecemeal Approach Not Adequate

A piecemeal approach to job training causes most employee-employer problems as they exist or develop, regarding the maintenance of a high level of satisfying employment. Typically, vocational-educators have provided training for entry-job skills or knowledge base without concern for actual employment. Employers have been more concerned with their product and profit without adequate concern for the employee; government agencies and unions have been concerned for employee welfare without adequate concern for employer output or employee upgrading; employement agencies have been concerned about placement without concern for improvement of employee competencies. The Job Corps has provided residential skill training programs for a type of person who poses the most difficult problems without taking real responsibility for effective placement and follow-up.

No agency really has a program concerned with the development of worker attitudes, the importance of which is admitted by all.

Each program obviously has a place and is of value, but when taken separately they are only a part and never a whole. They are like the food in a grocery store or the equipment in an appliance store; until they are put together in an appropriate way they do not constitute a dinner or a home. The odds are slight that anything of value will result if we continue to (1) educate without a plan or purpose, (2) work without a plan or purpose, or (3) provide a product without a plan or purpose. This suggests that those people and agencies concerned with helping people to become lifelong productive citizens must plan for a total cooperative effort as opposed to building pieces and leaving to chance the possibility that they will be put together as a career.

The RMEL Program

The Occupational Education Program of the Rocky Mountain Educational Laboratory is an attempt to develop a plan which does concern the whole, i.e., all the resources and needs concerned with the world of work. This program is composed of three major components. The first of these components is called "The Image of the World of Work." The objective of this component is to facilitate teachers in emphasizing work relevant attitudes and occupational information throughout a students total school experience.

The second component is the Occupational Clusters Curriculum. This component is designed to create and test a scheme for the development of occupational education curricula based on a career cluster concept and appropriate for implementation at the secondary school level. The curriculum would be designed to break the dichotomy between academic and vocational education, provide work exploration experiences and prepare pupils with entry-job skills through classroom and work experience.

Cooperative Career Planning is the third component. The objective of this component is to create a mechanism under the auspices of the school which would coordinate the efforts of all relevant community groups to guarantee all individuals the opportunity for job entry-continuous education and upward occupational mobility.

The mechanism is designed on the general model provided by the C.S. Mott Foundation in its work in Flint, Michigan and elsewhere. The fundamental difference is that the Flint project was focused on "recreation" and the RMEL project is focused on "work."

A Total Living Plan

Although our attention has thus far been limited to occupational education with emphasis on employment for pay and production, it is important to include many other important areas of service. Our communities and society support many kinds of work vital to good community living, such as personal volunteer projects, public service, and cultural and recreational use of leisure time. Our definition of occupational education includes all these because they utilize a person's time and energy, and their effectiveness depends on work in the same sense as does remunerative work and can be charted on the same educational and production work models.

To summarize, this is a guideline for a more realistic approach to career planning and to the providing of educational experiences which are highly relevant to the world of work and job requirements, a bridge over the gap between the educational system and the world of work. The input objective is to build a society in which all people can function with optimum satisfaction.